REMARKS

The Office Action dated October 17, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1 and 10 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claim 2 has been cancelled without prejudice or disclaimer. No new matter has been added and no new issues are raised which require further consideration or search. Therefore, claims 1 and 3-10 are currently pending in the application and are respectfully submitted for consideration.

Claim Rejections Under 35 U.S.C. § 102(b)

The Office Action rejected claims 1-5 and 7-10 under 35 U.S.C. §102(b) as allegedly anticipated by Kuno (U.S. Patent No. 5,802,494) ("Kuno"). The Office Action alleged that Kuno discloses or suggests every claim feature recited in claims 1-5 and 7-10. Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

Claim 1, upon which claims 3-9 are dependent, recites an image transmission system for a mobile robot, which includes a camera for capturing an image as an image signal, and human detecting means for detecting a human from the captured image. The image transmission system further includes a power drive unit for moving the entire robot toward the detected human, and face identifying means for identifying a position of a

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face of the detected human. The image transmission system further includes face image cut out means for cutting out a portion of the captured image of the detected human so that the portion of the image includes a face image of the detected human, and image transmitting means for transmitting only the cut out portion of the image including the face image to an external terminal. The image transmission system further includes means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image.

Claim 10 recites an image transmission system for a mobile robot, which includes a camera for capturing an image as an image signal, and human detecting means for detecting a human from the captured image. The image transmission system further includes a power drive unit for moving the entire robot toward the detected human, and image cut out means for cutting out a portion of the captured image so that the portion of the image includes an image of the detected human according to information from the camera. The image transmission system further includes image transmitting means for transmitting only the cut out portion of the image including the human image to an external terminal, and means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image.

As will be discussed below, Kuno fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

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Kuno discloses a monitoring system including a robot which has a video camera in its head, and a fixed video camera installed in a sickroom. (see Kuno at col. 3, lines 33-39, and col. 4, lines 8-10). Kuno further discloses electronic diagnosing devices, such as an electronic hemadynamometer and an electrocardiograph also installed in the sickroom. (See Kuno at col. 3, lines 36-40).

The video camera in the robot and the fixed video camera generate video signals representing the image of the subject. The electronic sensors, such as the hemadynamometer and the electrocardiograph, output diagnosis signals, representing the physical conditions of the subject. The video signals and the diagnosis signals are input to a signal processor, and the processor processes these input signals, thereby generating image data and diagnosis data. (See Kuno at col. 4, lines 8-24). The image data and diagnosis data are subsequently displayed on separate consoles. (See Kuno at col. 5, lines 26-30).

Applicants respectfully submit that Kuno fails to disclose, teach, or suggest, all of the elements of the present claims. For example, Kuno fails to disclose, teach, or suggest, at least, *"means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image,"* as recited in independent claim 1, and similarly recited in independent claim 10.

The Office Action took the position that Kuno discloses the aforementioned limitation, citing various portions of Kuno. (See Office Action at pages 8-9). Applicants

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respectfully submit that this position is incorrect because Kuno fails to disclose, or suggest, a means for monitoring state variables <u>including a current position of the robot,</u> for at least the following reasons.

While Kuno appears to disclose monitoring a subject's physical conditions, there is no disclosure of monitoring a <u>state variable</u> of the robot's current position to identify the robot's current position. Instead, <u>an image of the robot</u> generated by the stand alone camera is displayed and used to identify the robot's position. Kuno discloses that the image may be a two-dimensional image or a three-dimensional image. (See Kuno at col. 29, lines 37-44).

Furthermore, Applicants respectfully submit that Kuno fails to suggest monitoring a <u>state variable</u> of the current position of the robot, because Kuno explicitly discloses that either an operator (or the robot itself) must use the <u>image data</u> of the fixed camera to move the robot to the desired position. (See e.g. Kuno at col. 30, lines 14-33, 48-60). Thus Kuno discloses analyzing the image data, not a monitored state variable, to determine the position of a robot. Kuno further fails to suggest monitoring a state variable of the current position of the robot, because Kuno suggests that the robot will stay within a fixed area. For example, Kuno discloses that marks are pasted on the floor and walls of a sickroom, whereby the marks appearing in the image help the operator to determine the position of the robot. (See Kuno at col. 30, lines 52-56).

Finally, Kuno discloses that in guiding the robot to a desired position, a position of an infrared-ray emitting diode on the robot is determined by a calculation of an equation

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$x=(H-h) \tan (\alpha+\theta)$, where h is the height of the robot, H is the level that the fixed camera 31b is above the floor, α is the angle of the optical axis of the fixed camera 31b to a vertical line, and θ is the angle between the optical axis of the fixed camera 31b and the line passing the center of the zoom lens 31b of the camera 31b and the diode. A mark indicating the position of the diode is displayed in the image output by the fixed video camera 31b. (See Kuno at col. 29, lines 45-60; col. 30, lines 15-20). Thus, Kuno further fails to suggest monitoring a state variable of the current position of the robot, because Kuno merely discloses altering the projected image of the fixed camera 31b to include a mark based on the detected position of the diode.

In contrast, according to embodiments of the invention, the system includes a robot state monitoring unit for monitoring the state variables of a robot. The state variables of the robot may include the global location of the robot, direction of movement, and charged state of the battery. Such state variables can be detected by using sensors that are placed in appropriate parts of the robot, and are forwarded to the robot state monitoring unit. Furthermore, the state variables of the robot detected by the robot state monitoring unit may be <u>superimposed on the image captured and transmitted</u>. (See Specification at page 4, lines 18-19; page 5, lines 16-22; page 11, lines 22-25). Thus, according to embodiments of the invention, a state variable of the robot's current position is <u>separate and distinct from the underlying image</u>, because the state variable can be <u>superimposed on the image</u>.

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Therefore, for at least the reasons discussed above, Kuno fails to disclose, teach, or suggest, all of the elements of independent claims 1 and 10. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 3-9 depend upon independent claim 1. Thus, Applicants respectfully submit that claims 3-9 should be allowed for at least their dependence upon independent claim 1, and for the specific elements recited therein.

Claim Rejections Under 35 U.S.C. § 103(a)

The Office Action rejected claim 6 under 35 U.S.C. §103(a) as being allegedly unpatentable as obvious over Kuno and Higaki (U.S. Patent Publication No. 2004/0028260) ("Higaki"). The Office Action took the position that Kuno discloses all the elements of the claims with the exception of "a face database that stores images of a plurality of faces and face identifying means for comparing the cut out face image with the faces stored in the face database to identify the cut out face image." The Office Action then cited Higaki as allegedly curing the deficiencies of Kuno (See Office Action at page 15). Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

The description of Kuno, as discussed above, is incorporated herein. Higaki generally discloses a posture recognition apparatus which recognizes instructions signified by postures of persons present in the surroundings, from images obtained with an image capture device. (See Higaki at Abstract).

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Claim 6 depends upon independent claim 1. As discussed above, Kuno does not disclose, teach, or suggest all of the elements of independent claim 1. Furthermore, Higaki does not cure the deficiencies in Kuno, as Higaki also does not disclose, teach, or suggest, at least, *"means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image,"* as recited in independent claim 1. Thus, the combination of Kuno and Higaki does not disclose, teach, or suggest all of the elements of claim 6. Additionally, claim 6 should be allowed for at least its dependence upon independent claim 1, and for the specific elements recited therein.

The Office Action rejected claim 6 under 35 U.S.C. §103(a) as being allegedly unpatentable as obvious over Kuno in view of Nakadai, *et al.* (U.S. Patent No. 6,967,455) ("Nakadai"). The Office Action took the position that Kuno discloses all the elements of the claims with the exception of "a face database that stores images of a plurality of faces and face identifying means for comparing the cut out face image with the faces stored in the face database to identify the cut out face image." The Office Action then cited Nakadai as allegedly curing the deficiencies of Kuno. Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

The description of Kuno, as discussed above, is incorporated herein. Nakadai generally discloses a robot visual-auditory system which makes it possible to process data in real time to track vision and audition for an object. The system can integrate visual and auditory information on an object to keep track of the object and allow the system to

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process the information in real time to continually track the object both visually and auditorily. (See Nakadai at Abstract).

Claim 6 depends upon independent claim 1. As discussed above, Kuno does not disclose, teach, or suggest all of the elements of independent claim 1. Furthermore, Nakadai does not cure the deficiencies in Kuno, as Nakadai also does not disclose, teach, or suggest, at least, *"means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image,"* as recited in independent claim 1. Thus, the combination of Kuno and Nakadai does not disclose, teach, or suggest all of the elements of claim 6. Additionally, claim 6 should be allowed for at least its dependence upon independent claim 1, and for the specific elements recited therein.

Double Patenting

The Office Action provisionally rejected claim 1 on the ground of non-statutory obviousness-type double-patenting over claim 1 of co-pending Application No. 10/814343 in view of Kuno. Applicants respectfully request that the provisional rejection be held in abeyance until the present application or the co-pending application is in condition for allowance and the claims are in final form.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention
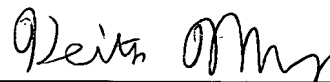
unanticipated and unobvious. It is therefore respectfully requested that all of claims 1 and 3-10 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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